



# IAG QuGe WG Q3 Online Meeting Oct 25, 2022

Current and upcoming Q3 activities

J Flury, Hannover (Q3 chair)

# Agenda

1. Welcome
2. Minutes
3. Current and upcoming activities (J Flury)
4. Updates on activities related to the group from members
  - J Müller
  - P Delva
  - C Lisdat
  - B Patla
  - R Goyal
  - all
5. Discussion and planning
6. AOB

# Activities in current IAG period

- WG Q3: one of 3 Working Groups in IAG Project Novel Sensors and Quantum Technology for Geodesy (QuGe)
- Kick off meeting Dec 21, 2020 (chair G Petit, co-chair J Flury)
- WG Q3 Workshop was planned but delayed
- G Petit retired from BIPM
- change in leadership approved: J Flury (chair), P Delva (co-chair)
- QuGe board meetings
- contribution to GGOS website

# Activities in current IAG period

- CCTF activities
- national activities
- conference sessions
- publications
- QuGe website
- upcoming: IUGG 2023 Berlin

# Activities in current IAG period



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Optical Atomic Clocks

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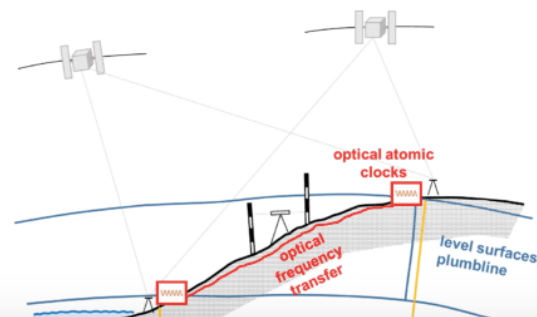
**OBSERVATIONS  
OVERVIEW**

Observation Types



## Optical Atomic Clocks

At present, the use of **optical atomic clocks for geodetic observations** and geodetic networks is in an **experimental stage**. However, it could become a very important operational technique in the future. Experimental atomic clocks (or frequency standards) in metrology laboratories today provide extremely precise frequencies based on a rich variety of energy transitions in different atomic species. The experiments make use of sophisticated quantum metrology procedures. Evaluations of the frequency measurements show mind-blowing precision with relative frequency inaccuracies that are currently at the level of  $10^{-18}$  only, making the measurements the most precise of any physical quantity.



# In person / hybrid workshop planning

- successful IAG JWG 2.1 workshops 2017, 2018
- in person / hybrid workshops meanwhile work well, despite of ongoing pandemic, in particular for smaller groups
- time difference difficult for longer online meetings
- suggestion: 2 day in person / hybrid WG Q3 workshop in 3-4 months
- location: Paris / Hannover / tbc

# Membership

Claude Boucher (France)  
Davide Calonico (Italy)  
Pascale Defraigne (Belgium)  
Pacôme Delva (France)  
Ropesh Goyal (India)  
Gesine Grosche (Germany)  
Hua Guan (China)  
Chris Hughes (UK)  
Sergei Kopeikin (USA)  
Jürgen Kusche (Germany)  
Claus Lämmerzahl (Germany)  
Marie-Françoise Lequentrec (France)  
Guillaume Lion (France)

Andrew Ludlow (USA)  
Helen Margolis (UK)  
Elena Mazurova (Russia)  
Nathan Newbury (USA)  
Bijunath Patla (USA)  
Nikos Pavlis (USA)  
Gerard Petit (France)  
Paul-Eric Pottie (France)  
Ulrich Schreiber (Germany)  
WenBin Shen (China)  
Simon Stellmer (Germany)  
Yoshiyuki Tanaka (Japan)  
Pieter Visser (Netherlands)